

**STRATIGRAPHIC NOMENCLATURE
RECOMMENDED FOR USE BY THE
MISSOURI DEPARTMENT OF NATURAL RESOURCES
MISSOURI GEOLOGICAL SURVEY**

by
David L. Bridges (Phanerozoic strata)
Patrick S. Mulvany (Phanerozoic strata and Introduction)
Lisa M. Lori (Proterozoic rocks)

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**MISSOURI
DEPARTMENT OF
NATURAL RESOURCES**

**MISSOURI GEOLOGICAL SURVEY
Joe Gillman, Director and State Geologist**

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INTRODUCTION — 2019 Update of Information Circular 31

The chrono-lithostratigraphy of Missouri has changed considerably since the Missouri Geological Survey published Information Circular 31 in 1993. The purpose of this update is to capture all the changes while assuring compliance with the *North American Stratigraphic Code* set by the North American Commission on Stratigraphic Nomenclature (1983). The formulae for *Code*-compliant stratigraphic names and examples of them are shown below. It should be noted that the Missouri Geological Survey's past use of quotation marks for flagging informally named and unnamed units has been abandoned.

Formal Unit Names — (*Code* specifies all words begin with upper case letter)

Position + Geographic Place Name + Lithology + Rank Term

Cambrian System, Mississippian Subsystem, Middle Pennsylvanian Series, Missourian Stage, Lower Warsaw Formation, Liberty Memorial Shale, St. Peter Sandstone, Chouteau Limestone, Sullivan Siltstone Member, Kansas City Group, Bronson Subgroup, Quarry Ledge (important marker bed recognized for over 100 years and worthy of formal status)

Informal Unit Names — (*Code* specifies only words in geographic place name begin with upper case letter)

position + Geographic Place Name + position + lithology + rank term

upper Cambrian series, Riverton lower coal bed, Farlington limestone bed, Farley upper limestone facies, Flint Hill sandstone facies, Squirrel sandstone, Chariton conglomerate

Unnamed Unit Names — (not specified in *Code* and adopted by Missouri Geological Survey)

the word "unnamed" + position + lithology + rank term

unnamed formation, unnamed shale, unnamed shale member, unnamed middle limestone facies

In the chronological and alphabetical listings of stratigraphic units contained herein, chronostratigraphic units appear in bold Times New Roman typeface (e.g., **Pennsylvanian Subsystem**), whereas lithostratigraphic units appear in plain Arial typeface (e.g., Dennis Formation). Both global and North American names have been employed for chronostratigraphic units.

Advances in conodont biostratigraphy have made it possible in many cases to recognize coevality of Paleozoic lithostratigraphic units having different names and occurring at different geographic locations in the state. Therefore, a line entry in the chronostratigraphic listing may contain more than one lithostratigraphic unit, indicating that all the units appearing in the line were deposited contemporaneously during an unspecified interval of time represented by the line. For example, line 4 on page 10 states, "Reeds Spring Fm., Bentonville Fm., Lower Warsaw Ls.," indicating that the three units were deposited at the same time, though in different parts of the state. This organizational strategy embodies both the *Law of Superposition* and *Walther's Law*. So as not to encumber a clean portrayal of the step-by-step march of geologic time, no attempt has been made to indicate geographic locations of the lithostratigraphic units. That information is contained in the reference literature.

For one exception—the McLouth Formation—the lithostratigraphic units listed occur in outcrop and are not confined to the subsurface. Names for Cambrian units confined to the subsurface are in Mulvaney and Thompson (2013).

The names of Proterozoic crystalline basement rock units that serve as the foundation for the Phanerozoic stratigraphic succession are included, though they are not listed in chronological order.

INTRODUCTION — 1993 Original Information Circular 31

In October, 1965, a Stratigraphic Names Committee was appointed by the State Geologist to recommend stratigraphic nomenclature and classification to be used by the Missouri Geological Survey. The first action of this committee was to recommend adoption of the Code of Stratigraphic Nomenclature of the American Commission on Stratigraphic Nomenclature (AAPG Bulletin, 1961, v.45, n. 5, p. 645-655). Shortly after adoption of the Code, the committee, with the help of other Survey staff members, prepared a list of formal names of rock-stratigraphic units in Missouri to be used in Survey manuscripts and publications. This list serves as a standard for uniform nomenclature usage by Survey staff members and has been recommended for use by agencies and individuals who rely on the Survey to provide such information.

In 1984 the Geological Survey, Missouri Department of Natural Resources, adopted the *North American Stratigraphic Code* (AAPG Bulletin, 1983, v. 67, n. 5, p. 841-875), which allowed some changes in the original concepts of formal stratigraphic nomenclature. Generally, a single formal name is recommended for each rock-stratigraphic unit. The name selected for a specific unit is based on knowledge of subsurface and surface characteristics of that unit throughout the state. The formal name of a formation that consists predominantly, but not necessarily entirely, of a single lithology comprises a geographic name followed by that of the predominant lithology. An example is the **Burlington Limestone**, which, as the name implies, is predominantly limestone, although it usually contains varying amounts of chert and locally may contain a high percentage of dolomite. If a formation has no single predominant lithology, its formal name consists of a geographic name followed by the word "Formation." An example is **Roubidoux Formation**. The first letter of each element of a formal name is capitalized. If the unit is not formally recognized, but is used as a marker bed within a formation, the name is usually placed within quotation marks ("Swan Creek sandstone" of the Cotter Dolomite; "Quarry Ledge" of the Jefferson City Dolomite).

Rock-stratigraphic units of member rank are similarly named. If a member has a single predominant lithology the appropriate lithologic term is included between the geographic name and the word "Member." An example is the **Myrick Station Limestone Member of the Pawnee Formation**. Several units have been defined as a series of formations that constitute a **group**, with designations like the **Macy Limestone of the Platin Group**. Although referred to as a group in detailed studies, the Platin can be called the **Platin Limestone** if a more regional, less detailed definition for the unit is desired, and the subdivisions are not used.

Facies and coal beds are usually not given formal recognition, although the newest code does allow coal beds to be recognized formally if desired, or required by the nature of the study. Examples of currently accepted informal usages are **Tebo coal**, and **Cooper limestone facies of the Cedar Valley Limestone**.

One of the functions of the Stratigraphic Committee is to recommend changes in stratigraphic nomenclature to the State Geologist. Proposals for such changes must be submitted to the committee by Survey geologists and are subject to final approval by the State Geologist.

1993 Stratigraphic Committee: Tom Thompson, Chairman; Jim Palmer; Mark Middendorf; Dave Smith; Bruce Netzler; Don Miller; and Jim Martin.

CHRONOLOGICAL LISTING OF NOMENCLATURE

Phanerozoic Eonothem

Cenozoic Erathem

Quaternary System

Holocene Series

Alluvium

Pleistocene Series

Upper Pleistocene Stage, Wisconsin Stage

Peoria Loess

Roxana Silt

Middle Pleistocene Stage, Illinoian Stage

Loveland Silt

Middle Pleistocene Stage, Pre-Illinoian Stage

McCredie Formation

Crowley's Ridge Silt, Macon Member

Columbia Member

Fulton Member

Lower Pleistocene Stage, Pre-Illinoian Stage

Moberly Formation

Atlanta Formation

Neogene System

Pliocene (?) Series

Mounds Gravel

Paleogene System

Eocene Series

Wilcox Group

Holly Springs Formation

Ackerman Formation

Paleocene Series

Midway Group

Porters Creek Clay

Clayton Formation

Mesozoic Erathem

Cretaceous System

Upper Cretaceous Series

Maastrichtian Stage

Owl Creek Formation

McNairy Formation

Campanian Stage

Coffee Sand

Post Creek Formation

Little Bear Formation

Paleozoic Erathem

Carboniferous System

Pennsylvanian Subsystem
Upper Pennsylvanian Series

Gzhelian Stage, Virgilian Stage

- Indian Cave Sandstone
- Wabaunsee Group
 - Richardson Subgroup
 - Stotler Formation
 - Grandhaven Member (?)
 - Dry Shale Member
 - Dover Limestone Member
 - Pillsbury Shale
 - Zeandale Formation
 - Maple Hill Limestone Member
 - Wamego Shale Member
 - Nyman coal bed
 - Tarkio Limestone Member
 - Nemaha Subgroup
 - Willard Shale
 - Emporia Formation
 - Elmont Limestone Member
 - Harveyville Shale Member
 - Reading Limestone Member
 - Auburn Shale
 - Bern Formation
 - Wakarusa Limestone Member
 - Soldier Creek Shale Member
 - Burlingame Limestone Member
 - Sacfox Subgroup
 - Scranton Formation
 - Silver Lake Shale Member
 - Rulo Limestone Member
 - Cedar Vale Shale Member
 - Elmo coal bed
 - Happy Hollow Limestone Member
 - White Cloud Shale Member
 - Howard Formation
 - Utopia Limestone Member
 - Winzeler Shale Member
 - Church Limestone Member
 - Aarde Shale Member
 - Nodaway coal bed
 - Severy Shale
 - Shawnee Group
 - Topeka Formation
 - Coal Creek Limestone Member
 - Holt Shale Member
 - Dubois Limestone Member
 - Turner Creek Shale Member
 - Sheldon Limestone Member
 - Jones Point Shale Member
 - Curzon Limestone Member
 - Iowa Point Shale Member
 - Hartford Limestone Member

- Calhoun Shale
- Deer Creek Formation
 - Ervine Creek Limestone Member
 - Larsh-Burroak Shale Member
 - Rock Bluff Limestone Member
 - Oskaloosa Shale Member
 - Ozawkie Limestone Member
- Tecumseh Shale
 - Rakes Creek Shale Member
 - Ost Limestone Member
 - Kenosha Shale Member
- Lecompton Formation
 - Avoca Limestone Member
 - King Hill Shale Member
 - Beil Limestone Member
 - Queen Hill Shale Member
 - Big Springs Limestone Member
 - Doniphan Shale Member
 - Spring Branch Limestone Member
- Kanwaka Shale
 - Stull Shale Member
 - Clay Creek Limestone Member
 - Jackson Park Shale Member
- Oread Formation
 - Kereford Limestone Member
 - Heumader Shale Member
 - Plattsmouth Limestone Member
 - Heebner Shale Member
- Kasimovian Stage, Virgilian Stage**
 - Leavenworth Limestone Member
 - Snyderville Shale Member
 - Toronto Limestone Member
- Douglas Group
 - Lawrence Shale
 - Wathena Shale Member
 - Amazonia Limestone Member
 - Pigeon Hill Shale Member
 - Ireland sandstone facies
 - Robbins shale facies
- Cass Formation
 - Shoemaker Limestone Member
 - Little Pawnee Shale Member
 - Haskell Limestone Member
- Kasimovian Stage, Missourian Stage**
 - Stranger Formation
 - Vinland Shale Member
 - Westphalia Limestone Member
 - Tonganoxie Sandstone Member
 - Sibley upper coal bed
 - Iatan Limestone Member
 - Weston Shale Member
- Lansing Group
 - South Bend Formation
 - Kitaki Limestone Member

- Gretna Shale Member
- Little Kaw Limestone Member
- Rock Lake Shale
- Stanton Formation
 - Stoner Limestone Member
 - Eudora Shale Member
 - Captain Creek Limestone Member
- Vilas Shale
- Plattsburg Formation
 - Spring Hill Limestone Member
 - Hickory Creek Shale Member
 - Merriam Limestone Member
- Kansas City Group
- Zarah Subgroup
 - Lane Shale
 - Bonner Springs Shale Member
 - Farley Limestone Member
 - Farley upper limestone facies
 - Farley middle shale facies
 - Farley lower limestone facies
 - Island Creek Shale Member
- Wyandotte Formation
 - Argentine Limestone Member
 - Quindaro Shale Member
 - Frisbie Limestone Member
- Liberty Memorial Shale
- Iola Formation
 - Raytown Limestone Member
 - Muncie Creek Shale Member
 - Paola Limestone Member
- Linn Subgroup
 - Chanute Shale
- Dewey Formation
 - Cement City Limestone Member
 - Quivira Shale Member
- Nellie Bly Formation
 - Belton sandstone
- Cherryvale Formation
 - Westerville Limestone Member
 - Wea Shale Member
 - Block Limestone Member
 - Fontana Shale Member
- Bronson Subgroup
 - Dennis Formation
 - Winterset Limestone Member
 - Stark Shale Member
 - Canville Limestone Member
- Galesburg Shale
- Swope Formation
 - Bethany Falls Limestone Member
 - Hushpuckney Shale Member
 - Middle Creek Limestone Member
- Elm Branch Shale
- Hertha Formation

- Sniabar Limestone Member
- Mound City Shale Member
- Pleasanton Group
 - Shale Hill Formation
 - Guthrie Mountain Shale Member
 - Ovid coal bed
 - Critzer Limestone Member
 - Blue Mound Shale Member
 - Locust Creek coal beds
 - Knobtown Limestone Member
 - Weldon River Sandstone Member
 - Chariton conglomerate
 - Mantey Shale Member
 - Exline Limestone Member

Upper? Middle? Pennsylvanian Series

Kasimovian? Moscovian? Stage, Desmoinesian Stage

- Hepler Formation
 - unnamed shale member
 - Grain Valley coal bed
- East Branch Sandstone Member
- Marmaton Group
 - Holdenville Subgroup
 - Lost Branch Formation
 - unnamed shale member
 - Cooper Creek Limestone Member
 - unnamed shale member
 - Nuyaka Creek Shale Member
 - Sni Mills Limestone Member
 - Memorial Shale
 - unnamed shale member
 - Dawson coal bed
 - Perry Farm Shale Member
 - Idenbro limestone bed
 - Lenapah Formation
 - Norfleet Limestone Member
 - Nowata Shale
 - Walter Johnson Sandstone Member
 - Laredo coal bed
- Appanoose Subgroup
 - Altamont Formation
 - Worland Limestone Member
 - Lake Neosho Shale Member
 - Amoret Limestone Member
 - Bandera Shale
 - Bandera Quarry Sandstone Member
 - Farlington limestone bed

Middle Pennsylvanian Series

Moscovian Stage, Desmoinesian Stage

- Mulberry coal bed
- Pawnee Formation
 - Coal City Limestone Member
 - Mine Creek Shale Member
 - Myrick Station Limestone Member
 - Anna Shale Member

- Labette Shale
 - Lexington coal bed
 - Englevale Sandstone Member
 - Alvis coal bed
 - Labette lower sandstone
- Fort Scott Subgroup
 - Higginsville Limestone
 - Little Osage Formation
 - Blackwater Creek Shale Member
 - Flint Hill sandstone facies
 - Houx Limestone Member
 - Binkley Shale Member
 - Morgan School Shale Member
 - Summit coal bed
 - Blackjack Creek Limestone
 - Blackjack Creek upper limestone member
 - Blackjack Creek middle limestone member
 - Blackjack Creek lower limestone member
- Excello Shale
- Cherokee Group
 - Cabaniss Subgroup
 - Mulky Formation
 - Mulky coal bed
 - Breezy Hill Limestone Member
 - Lagonda Formation
 - Squirrel sandstone facies
 - Bevier Formation
 - Bevier coal bed
 - Verdigis Formation
 - Wheeler Member
 - Wheeler coal bed
 - Ardmore Limestone Member
 - Oakley Shale Member
 - Mecca Quarry shale bed
 - Croweburg Formation
 - Croweburg coal bed
 - Fleming Formation
 - Fleming coal bed
 - Robinson Branch Formation
 - Robinson Branch coal bed
 - Mineral Formation
 - Mineral coal bed
 - Scammon Formation
 - Scammon coal bed
 - Chelsea Sandstone Member
 - Tiawah Limestone Member
 - Tebo Formation
 - Tebo coal bed
 - Weir Formation
 - Weir-Pittsburg upper coal bed
 - Weir-Pittsburg middle coal bed
 - Weir-Pittsburg lower coal bed
- Krebs Subgroup
 - Welborn Formation

- Hackberry Branch Limestone Member
- Bluejacket Sandstone
 - Bluejacket coal bed
- Drywood Formation
 - Drywood coal bed
 - Drywood lower coal bed
- Rowe Formation
 - Rowe coal bed
- Warner Sandstone
 - Warner (Neutral) coal bed
- Hartshorne (?) Formation
- Riverton Shale
- Moscovian Stage, Atokan Stage**
 - Riverton Shale
 - Riverton upper coal bed
 - Riverton middle coal bed
 - Riverton lower coal bed
 - Ladden Branch Limestone Member
- Lower Pennsylvanian Series**
 - Bashkirian Stage, Atokan Stage**
 - Burgner Formation
 - Bashkirian Stage, Morrowan Stage**
 - McLouth Formation (subsurface only)
 - Hale Formation
 - Prairie Grove Member
 - Cheltenham Formation
 - Graydon Conglomerate
- Mississippian Subsystem**
 - Middle Mississippian Series**
 - Visean Stage, Chesterian Stage**
 - Vienna Limestone
 - Tar Springs Sandstone
 - Fayetteville Shale, Tar Springs Sandstone
 - Wedington Sandstone Member of Fayetteville Shale
 - Fayetteville Shale, Glen Dean Limestone
 - Fayetteville Shale, Hardinsburg Formation
 - Fayetteville Shale, Golconda Formation
 - Haney Limestone Member of Golconda Formation
 - Fraileys Shale Member of Golconda Formation
 - Hindsville Limestone, Batesville Sandstone, Golconda Formation
 - Beech Creek Limestone Member of Golconda Formation
 - Cypress Formation
 - Paint Creek Formation
 - Ridenhower Limestone Member
 - Bethel Member
 - Downeys Bluff Limestone Member
 - Yankeetown Sandstone
 - Renault Formation
 - Aux Vases Sandstone
 - Ste. Genevieve Limestone
 - Visean Stage, Meramecian Stage**
 - St. Louis Limestone

Salem Formation
Ritchey Formation, Upper Warsaw Formation

Visean Stage, Osagean Stage

Reeds Spring Fm., Bentonville Fm., Lower Warsaw Fm.
Short Creek Member of Bentonville Formation
Pierson Ls., Reeds Spring Fm., Bentonville Fm., Keokuk Ls.
Peerless Park Member of Keokuk Limestone

Lower Mississippian Series

Tournaisian Stage, Osagean Stage

Pierson Ls., Reeds Spring Fm., Bentonville Fm., Burlington Ls.
Pierson Ls., Reeds Spring Fm., Bentonville Fm., Burlington Ls., Fern Glen Fm.
Pierson Limestone, Fern Glen Formation
Meppen Limestone Member of Fern Glen Formation
Pierson Limestone

Tournaisian Stage, Kinderhookian Stage

Chouteau Group
McCraney Limestone, Northview Formation
Baird Mountain Limestone Member of Northview Formation
Chouteau Limestone, Sedalia Formation
Chouteau Limestone, unnamed formation
Chouteau Limestone, Compton Limestone
Hannibal Shale
Hannibal Shale, Bachelor Formation
Hannibal Shale
Horton Creek Limestone

Devonian System

Upper Devonian Series

Famennian Stage

Chattanooga Shale?, Louisiana Limestone
Chattanooga Shale?, Saverton Shale, Louisiana Limestone
Chattanooga Shale?, Saverton Shale, Sulphur Springs Group
Bushberg Sandstone of Sulphur Springs Group
Glen Park Limestone of Sulphur Springs Group
unnamed shale of Sulphur Springs Group
Chattanooga Shale, Saverton Shale, Holts Summit Sandstone
Chattanooga Sh., Saverton Sh., Holts Summit Sandstone, Maple Mill shale
Chattanooga Shale, Holts Summit Sandstone, Grassy Creek Shale
Sylamore Ss., Chattanooga Sh., Holts Summit Ss., Grassy Creek Sh., Turpin Ss.

Frasnian Stage

Sweetland Creek Shale
Snyder Creek Shale, Cedar Valley Limestone?
Cedar Valley Limestone

Middle Devonian Series

Givetian Stage

Cedar Valley Limestone
Cedar Valley Limestone, Fortune Formation, St. Laurent Limestone
Cedar Valley Limestone, St. Laurent Limestone
St. Laurent Limestone
St. Laurent Limestone, Beauvais Sandstone

Eifelian Stage

St. Laurent Limestone, Beauvais Sandstone

Grand Tower Limestone

Lower Devonian Series**Emsian Stage**

Grand Tower Limestone

Clear Creek Chert

Little Saline Limestone

Pragian Stage?

Grassy Knob Chert

Lochkovian Stage?

Grassy Knob Chert

Bailey Formation

Silurian System**Pridoli Series**

Bailey Formation

Bainbridge Formation

Moccasin Springs Member

Ludlow Series**Ludfordian Stage**

Moccasin Springs Member

Gorstian Stage

Moccasin Springs Member

Wenlock Series**Homerian Stage**

St. Clair Limestone Member

Sheinwoodian Stage

St. Clair Limestone Member

Seventy-Six Shale Member

Llandovery Series**Telychian Stage**

Seventy-Six Shale Member

Sexton Creek Limestone

Aeronian Stage

Bowling Green Dolomite

Rhuddanian Stage

Bryant Knob Formation

Kissenger Limestone Member

Ordovician System**Upper Ordovician Series****Hirnantian Stage, Cincinnati Stage**

Noix Limestone, Cyrene Limestone, Leemon Formation

Maquoketa Group

Girardeau Limestone

Maquoketa Shale

Orchard Creek Shale

Katian Stage, Cincinnati Stage

Orchard Creek Shale

Thebes Sandstone
Cape La Croix Shale
Cape Limestone, Kimmswick Limestone

Katian Stage, Mohawkian Stage

Kimmswick Limestone
House Springs K-bentonite bed
Decorah Group
Guttenberg Limestone
Kings Lake Limestone

Sandbian Stage, Mohawkian Stage

Kings Lake Limestone
Spechts Ferry Formation
Glencoe Shale Member
Millbrig K-bentonite bed
Castlewood Limestone Member
Deicke K-bentonite bed

Plattin Group
Macy Limestone
Zell Member
Hook Member
Hager Limestone
Victory Member
Hely Member
Glaize Creek Member
Beckett Limestone
Bloomsdale Limestone
Establishment Shale Member
Brickeys Member
Blomeyer Member
Pecatonica Formation
Oglesby Member
Medusa Member
Joachim Dolomite
Metz Member
Matson Member
Defiance Member
Boles Member

Sandbian Stage, Whiterockian Stage

Joachim Dolomite, St. Peter Sandstone
Augusta Member of Joachim Dol., Starved Rock Member of St. Peter Ss.
Abernathy Member of Joachim Dol., Starved Rock Member of St. Peter Ss.

Middle Ordovician Series

Darriwilian Stage, Whiterockian Stage

Dutchtown Formation, St. Peter Sandstone
Starved Rock Member of St. Peter Sandstone
Tonti Member of St. Peter Sandstone
Kress Member of St. Peter Sandstone
Everton Formation

Lower Ordovician Series, Ibexian Series

Floian Stage

Smithville Dolomite
Powell Dolomite

Cotter Dolomite
Swan Creek sandstone
Jefferson City Dolomite

Tremadocian Stage

Jefferson City Dolomite
Quarry Ledge
Roubidoux Formation
Gasconade Dolomite

Skullrockian Stage of Ibexian Series

Gasconade Dolomite
Gunter Sandstone Member

Cambrian System

upper Cambrian series, Ibexian Series

Skullrockian Stage of Ibexian Series

Gunter Sandstone Member, Potosi-Eminence Dolomite, Eminence Dolomite

upper Cambrian series, Millardian Series

Sunwaptan Stage

Potosi-Eminence Dolomite, Eminence Dolomite
Potosi-Eminence Dolomite, Potosi Dolomite
Dug Hill Fm.?, Taum Sauk ls. facies?, Potosi-Eminence Dol., Potosi Dol.
Dug Hill Fm., Taum Sauk ls. facies, Derby-Doerun Dol. of Elvins Group
Dug Hill Fm., Taum Sauk ls. facies, Derby-Doerun Dol. and Davis Fm. of Elvins Group

Steptoean Stage

Dug Hill Fm., Taum Sauk ls. facies, Derby-Doerun Dol. and Davis Fm. of Elvins Group
Dug Hill Fm., Taum Sauk ls. facies, Davis Fm. of Elvins Group
Dug Hill Formation, Taum Sauk limestone facies, Bonnetterre Formation
Whetstone Creek Member of Bonnetterre Formation
Sullivan Siltstone Member of Bonnetterre Formation

middle Cambrian series, Lincolnian Series

Marjuman Stage

Sullivan Siltstone Member of Bonnetterre Formation
Dug Hill Formation, Taum Sauk limestone facies, Bonnetterre Formation,
Lamotte-Bonnetterre transition beds, Lamotte-Dug Hill transition beds
Lamotte Sandstone

Proterozoic Eonothem (crystalline basement rock)

St. Francois Mountains Volcanic Supergroup

Taum Sauk Group

Cope Hollow Formation
Johnson Shut-Ins Rhyolite
Proffit Mountain Formation
Taum Sauk Rhyolite
Royal Gorge Rhyolite
Bell Mountain Rhyolite
Wildcat Mountain Rhyolite
Russell Mountain Rhyolite
Lindsey Mountain Rhyolite
Ironton Rhyolite
Buck Mountain Shut-Ins Formation
Pond Ridge Rhyolite
Cedar Bluff Rhyolite

- Shepherd Mountain Rhyolite
- Butler Hill Group
 - Ironton Hollow Rhyolite
 - Wolf Mountain Ignimbrite
 - Tribby Breccia
 - Iron Mountain Lake ignimbrite
 - Grassy Mountain Ignimbrite
 - Lake Killarney Formation
- unassigned volcanic units
 - Little Creek formation
 - Glover formation
 - Ketcherside Mountain ignimbrite
 - Buford Mountain Rhyolite
 - Buford Mountain trachyandesite
 - Iron Mountain Lake rhyolite
 - Mudlick dellenite
- St. Francois Mountains Intrusive Suite
 - hypabyssal rocks
 - Buford Granite Porphyry
 - Munger Granite Porphyry
 - Carver Creek Granite Porphyry
 - Brown Mountain Rhyolite Porphyry
 - plutonic rocks
 - Graniteville Granite
 - Silvermine Granite
 - Knoblick Granite
 - Slabtown Granite
 - Stono Granite
 - Butler Hill Granite
 - Breadtray Granite

ALPHABETICAL LISTING OF NOMENCLATURE

A

Aarde Shale Member	4
Abernathy Member	12
Ackerman Formation	3
Aeronian Stage	11
Alluvium	3
Altamont Formation	7
Alvis coal bed	8
Amazonia Limestone Member	5
Amoret Limestone Member	7
Anna Shale Member	7
Appanoose Subgroup	7
Ardmore Limestone Member	8
Argentine Limestone Member	6
Atlanta Formation	3
Atokan Stage	9
Auburn Shale	4
Augusta Member	12
Aux Vases Sandstone	9
Avoca Limestone Member	5

B

Bachelor Formation	10
Bailey Formation	11
Bainbridge Formation	11
Baird Mountain Limestone Member	10
Bandera Shale	7
Bandera Quarry Sandstone Member	7
Bashkirian Stage	9
Batesville Sandstone	9
Beauvais Sandstone	10, 11
Beckett Limestone	12
Beech Creek Limestone Member	9
Beil Limestone Member	5
Bell Mountain Rhyolite	13
Belton sandstone	6
Bentonville Formation	10
Bern Formation	4
Bethany Falls Limestone Member	6
Bethel Member	9
Bevier coal bed	8
Bevier Formation	8
Big Springs Limestone Member	5
Binkley Shale Member	8
Blackjack Creek Limestone	8
Blackjack Creek lower limestone member.....	8
Blackjack Creek middle limestone member.....	8

Blackjack Creek upper limestone member.....	8
Blackwater Creek Shale Member	8
Block Limestone Member	6
Blomeyer Member	12
Bloomsdale Limestone	12
Blue Mound Shale Member	7
Bluejacket coal bed	9
Bluejacket Sandstone	9
Boles Member	12
Bonner Springs Shale Member	6
Bonneterre Formation	13
Bowling Green Dolomite	11
Breadtray Granite	14
Breezy Hill Limestone Member	8
Brickeys Member	12
Bronson Subgroup	6
Brown Mountain Rhyolite Porphyry	14
Bryant Knob Formation	11
Buck Mountain Shut-Ins Formation	13
Buford Granite Porphyry	14
Buford Mountain Rhyolite	14
Buford Mountain trachyandesite.....	14
Burgner Formation	9
Burlingame Limestone Member	4
Burlington Limestone	10
Bushberg Sandstone	10
Butler Hill Granite	14
Butler Hill Group	14

C

Cabaniss Subgroup	8
Calhoun Shale	5
Cambrian System	13
Campanian Stage	3
Canville Limestone Member	6
Cape La Croix Shale	12
Cape Limestone	12
Captain Creek Limestone Member	6
Carboniferous System	3
Carver Creek Granite Porphyry	14
Cass Formation	5
Castlewood Limestone Member	12
Cedar Bluff Rhyolite	13
Cedar Vale Shale Member	4
Cedar Valley Limestone	10
Cement City Limestone Member	6
Cenozoic Erathem	3
Chanute Shale	6
Chariton conglomerate	7
Chattanooga Shale	10

Chelsea Sandstone Member	8
Cheltenham Formation	9
Cherokee Group	8
Cherryvale Formation	6
Chesterian Stage	9
Chouteau Group	10
Chouteau Limestone	10
Church Limestone Member	4
Cincinnatian Stage	11
Clay Creek Limestone Member	5
Clayton Formation	3
Clear Creek Chert	11
Coal City Limestone Member	7
Coal Creek Limestone Member	4
Coffee Sand	3
Columbia Member	3
Compton Limestone	10
Cooper Creek Limestone Member	7
Cope Hollow Formation	13
Cotter Dolomite	13
Cretaceous System	3
Critzer Limestone Member	7
Croweburg coal bed	8
Croweburg Formation	8
Crowley's Ridge Silt	3
Curzon Limestone Member	4
Cypress Formation	9
Cyrene Limestone	11

D

Darriwilian Stage	12
Davis Formation	13
Dawson coal bed	7
Decorah Group	12
Deer Creek Formation	5
Defiance Member	12
Deicke K-bentonite bed	12
Dennis Formation	6
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